What Is Claimed Is:

1. An apparatus for automated immunochemistry or chemistry analysis, comprising:

    a. an analytical unit having a multiplicity of subsystems for performing immunochemistry or chemistry assays, including:

    (i) a sample presentation unit for loading samples;

    (ii) a sample aliquoting station unit for aliquoting samples;

    (iii) a sample aliquot storage unit for storing sample aliquots;

    (iv) a bulk vessel feeder unit for supplying empty vessels used for containing sample aliquots and reagents;

    (v) a multiplicity of reagent pipetting station units for pipetting sample aliquots and reagents;

    (vi) a reagent storage unit;

    (vii) an incubation station unit; and

    (viii) a multiplicity of pick-and-place grippers for transporting sample and reagent vessels; and

    b. a mechanical control system having both object-orient features and real-time features for control the operations of said multiplicity of subsystems of said analytical unit.

2. The apparatus as defined in claim 1, wherein said mechanical control system comprises a sequencer for starting said operations of said multiplicity of subsystems of said analytical unit at correct times respectively.

3. The apparatus as defined in claim 1, wherein said mechanical control system comprises a scheduler for determining the times when one or more sets of operations of said multiplicity of subsystems of said analytical unit must be executed.

4. The apparatus as defined in claim 1, wherein said object-orient features of said mechanical control system include the feature of hiding the real-time features in the subsystem base class.

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5.   The apparatus as defined in claim 1, wherein said object-orient features of said mechanical control system include the feature of causing actions to be performed on specific vessels at specific times.

6.   The apparatus as defined in claim 1, wherein said real-time features of said mechanical control system include the feature of satisfying the requirement that certain actions of one or more units of said apparatus must occur at a specific time in order for said apparatus to function correctly.

7.   An apparatus for mechanical control of an automated immunochemistry or chemistry instrument which has a multiplicity of subsystems for performing immunochemistry or chemistry assays, the control apparatus comprising a mechanical control system having both object-orient features and real-time features for control of the operations of the multiplicity of subsystems.

8.   The apparatus as defined in claim 7, wherein said mechanical control system comprises a sequencer for starting said operations of said multiplicity of subsystems at correct times respectively.

9.   The apparatus as defined in claim 7, wherein said mechanical control system comprises a scheduler for determining the times when one or more sets of operations of said multiplicity of subsystems must be executed.

10.   The apparatus as defined in claim 7, wherein said mechanical control system comprises a recipe containing instructions for each test.

11.   The apparatus as defined in claim 7, wherein said mechanical control system comprises a chronicle which stores test history information pertaining to each test run.

12.   The apparatus as defined in claim 7, wherein said object-orient features of said mechanical control system include the feature of hiding the real-time features in the subsystem base class.

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13.   The apparatus as defined in claim 7, wherein said object-orient features of said mechanical control system include the feature of causing actions to be performed on specific vessels at specific times.

14.   The apparatus as defined in claim 7, wherein said real-time features of said mechanical control system include the feature of satisfying the requirement that certain actions of one or more units of said apparatus must occur at a specific time in order for said apparatus to function correctly.

15.   A method for automated immunochemistry or chemistry analysis, comprising the steps of:

a.   performing a multiplicity of steps for immunochemistry or chemistry assays, including the steps of:

(i)   loading samples;

(ii)   aliquoting samples;

(iii)   storing sample aliquots;

(iv)   supplying empty vessels used for containing sample aliquots and reagents;

(v)   pipetting sample aliquots and reagents;

(vi)   storing reagents;

(vii)   incubating vessels containing samples and reagents;

(viii)   transporting sample and reagent vessels; and

b.   controlling said multiplicity of steps for immunochemistry or chemistry assays with a combination of both object-orient features and real-time features.

16.   The method as defined in claim 15, wherein said controlling step further comprises a sequencing step for starting said multiplicity of steps for immunochemistry or chemistry assays at correct times respectively.

17.   The apparatus as defined in claim 15, wherein said controlling step further comprises a scheduling step for determining the times when one or more sets of said multiplicity of steps for immunochemistry or chemistry assays must be executed.

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18.   The method as defined in claim 15, wherein said object-orient features of said controlling step include the feature of hiding the real-time features.

19.   The method as defined in claim 15, wherein said object-orient features of said controlling step include the feature of causing actions to be performed on specific

5   vessels at specific times.

20.   The method as defined in claim 15, wherein said real-time features of said controlling step include the feature of satisfying the requirement that certain actions for said assay must occur at a specific time in order for said analysis to be performed correctly.

10 21.   A method for controlling an automated immunochemistry or chemistry analysis process which includes a multiplicity of steps for immunochemistry or chemistry assays, the control method comprising the step of controlling said multiplicity of steps for immunochemistry or chemistry assays with a combination of both object-orient features and real-time features.

15 22.   The method as defined in claim 21, wherein said controlling step further comprises a sequencing step for starting said multiplicity of steps for immunochemistry or chemistry assays at correct times respectively.

23.   The method as defined in claim 21, wherein said controlling step further comprises a scheduling step for determining the times when one or more sets of

20   said multiplicity of steps for immunochemistry or chemistry assays must be executed.

24.   The method as defined in claim 21, wherein said object-orient features of said controlling step include the feature of hiding the real-time features.

25.   The method as defined in claim 21, wherein said object-orient features of said

25   controlling step include the feature of causing actions to be performed on specific vessels at specific times.

26.   The method as defined in claim 21, wherein said real-time features of said controlling step include the feature of satisfying the requirement that certain actions for said assay must occur at a specific time in order for said analysis to be performed correctly.